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(12)

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#### (54) INDEPENDENTLY POWERED ANVIL FOR CIRCULAR SURGICAL STAPLER

(57) A surgical stapler including a body assembly; a shaft assembly that extends distally from the body assembly; a stapling head assembly disposed at a distal end of the shaft assembly, wherein the stapling head assembly is operable to drive a plurality of staples into tissue, wherein the stapling head assembly comprises a closure shaft that is selectively movable longitudinally; and an anvil configured to form the staples, wherein the anvil is selectively coupleable with and actuatable by the

closure shaft, wherein the anvil includes one or more sensors each configured to detect a parameter associated with at least one of closure or firing of the end effector; a processor configured to receive signals from the one or more sensors, wherein the signals are indicative of the parameter detected by the one or more sensors; a transmitter configured to transmit the signals; and a battery configured to power the processor.

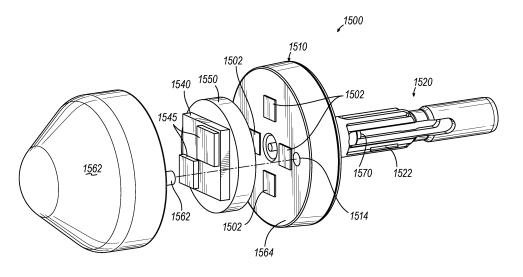


FIG. 8



#### **EUROPEAN SEARCH REPORT**

**Application Number** 

EP 24 19 0195

		<b>DOCUMENTS CONSID</b>	ERED TO B	E RELEVA	ANT		
10	Category	Citation of document with in of relevant pass		appropriate,		Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
10	X	WO 2022/189934 A1 (15 September 2022 (* especially para.	2022-09-1			1,2,4,5, 7,9-11, 14,15 3,6,8	INV. A61B17/115 ADD.
15		paragraph [0028] - figures 1-9 *	paragraph	[0062];			A61B17/00 A61B90/00
20	A	US 2022/104806 A1 ([US] ET AL) 7 April * especially figs. paragraph [0112] - figures 18-70 *	2022 (202 35-42;	22-04-07)		1-11,14, 15	
25	A	EP 3 108 823 A2 (ET [PR]) 28 December 2 * paragraph [0008] figures 27, 28 *	016 (2016	12-28)		1-11,14, 15	
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30		* the whole documen				15	TECHNICAL FIELDS SEARCHED (IPC)
35							A61B
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50 2		The present search report has	been drawn up f	or all claims			
		Place of search	Date o	f completion of the s	search		Examiner
04C01		Munich	14	November	2024	Kam	p, Martin
82 (PC	C	ATEGORY OF CITED DOCUMENTS		T : theory o	or principle	underlying the in	nvention
95 55 PO FORM 1503 03.82 (P04C01)	Y : pari	ticularly relevant if taken alone ticularly relevant if combined with anot ument of the same category nnological background	her	after the D : docume L : docume	e filing date ent cited in ent cited for	the application other reasons	
EPO FOR	O : nor	nnoigical background n-written disclosure rmediate document			r of the sar	me patent family	, corresponding



**Application Number** 

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	CLAIMS INCURRING FEES
10	The present European patent application comprised at the time of filing claims for which payment was due.
	Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):
15	No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.
20	LACK OF UNITY OF INVENTION
25	The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:
30	see sheet B
35	All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
	As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
40	Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
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50	None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:  1-3, 6-11, 14(completely); 4, 5, 15(partially)
55	The present supplementary European search report has been drawn up for those parts
	of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



## LACK OF UNITY OF INVENTION SHEET B

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-3, 6-11, 14(completely); 4, 5, 15(partially)

A surgical stapler comprising: (a) a body assembly; (b) a shaft assembly that extends distally from the body assembly; (c) a stapling head assembly disposed at a distal end of the shaft assembly, wherein the stapling head assembly is operable to drive a plurality of staples into tissue, wherein the stapling head assembly comprises a closure shaft that is selectively movable longitudinally; and(d) an anvil configured to form the staples, wherein the anvil is selectively coupleable with and actuatable by the closure shaft, wherein the anvil comprises: (i) one or more sensors each configured to detect a parameter associated with at least one of closure or firing of the end effector; (ii) a processor configured to receive signals from the one or more sensors, wherein the signals are indicative of the parameter detected by the one or more sensors; (iii) a transmitter configured to transmit the signals received by the processor; and(iv) a battery configured to power the processor and the transmitter.

2. claims: 12, 13(completely); 4, 5, 15(partially)

An anvil configured for use with a surgical stapler, the anvil being configured to form staples and comprising: (a) one or more sensors each configured to detect a parameter associated with at least one of closure or firing of the surgical stapler; (b) a processor configured to receive signals from the one or more sensors, wherein the signals are indicative of the parameter detected by the one or more sensors; (c) a transmitter configured to transmit the signals received by the processor; (d) a battery configured to power the processor and the transmitter; and(e) a power switch configured to transition the anvil between a low-power configuration and a high-power configuration, wherein the anvil in the low-power configuration consumes less energy from the battery than the anvil in the high-power configuration.

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### ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

14-11-2024

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